



Doing More With Less: Utilizing AI & ML To Improve Operational Efficiency

NAVIX

Introduction

The challenge of improving efficiency is never ending for third-party logistics providers (3PLs) and freight brokers. Many still have outdated systems, disparate data sources, and manual processes which are holding them back from experiencing their full growth potential.

While having a defined process and strategy is essential, leading organizations are finding benefits in the adoption of Artificial intelligence (AI) and Machine Learning (ML) to improve their operational efficiency. The result of this improved efficiency is an increase in volume, improved service, and sustainable growth.

In this eBook, we will explore several ways that 3PLs and freight brokers can deploy AI and ML in their business to maximize efficiency and automate processes and most of all scale their business operations.

AI and ML Basics



Before we dive into how these solutions can help your organization become more efficient, it is important to understand the basics of AI and ML, which have been the most transformative technologies in recent years. Both AI and ML continue to reshape the logistics industry and have emerged as powerful tools for enhancing efficiency, cost-effectiveness, and overall operations.

AI refers to the simulation of human intelligence processes by machines, enabling them to perform tasks that typically require human intelligence, such as problem-solving, decision-making, speech recognition, and language translation. AI systems can operate autonomously, analyze data, and learn from experiences to improve their performance over time.

ML is a subset of AI that focuses on building algorithms that enable machines to learn from data. Instead of being explicitly programmed, ML algorithms learn patterns from data and use those patterns to make predictions or decisions. This ability to learn and adapt is what makes ML so valuable for complex tasks.

Key AI/ML Concepts and Terminology

Data: The foundation of AI and ML is data. In the logistics context, this could include historical shipment data, bill of lading, financial data, route information, carrier preferences, and more. The quality and quantity of data significantly impact the effectiveness of AI and ML models.

Algorithm: An algorithm is a step-by-step set of instructions followed by a machine to perform a specific task. In ML, algorithms process data to learn patterns and make predictions. Examples include decision trees, neural networks, and support vector machines.

Training Data: This is the dataset used to train an ML model. It consists of input examples and corresponding desired outputs. During training, the model adjusts its internal parameters to minimize the difference between its predictions and the actual outputs.

Feature Engineering: This involves selecting, transforming, and creating relevant features (variables) from raw data to improve the performance of an ML model. In logistics, features could be shipment volume, distance, time of day, and more.

Supervised Learning: A type of ML where the model is trained on labeled data, meaning the desired output is provided alongside the input data. The model learns to predict the output based on patterns in the training data.

Unsupervised Learning: In this type, the model works with unlabeled data and aims to discover patterns or relationships within the data itself. It's often used for tasks like clustering or dimensionality reduction.

Prediction vs. Classification: In logistics, prediction involves estimating a continuous value, such as the expected delivery time, while classification involves categorizing data into predefined classes, like categorizing shipments by urgency.

Optimization: AI and ML can be used to optimize logistics operations by finding the best possible solution given certain constraints. For instance, optimizing routes for deliveries to reduce transportation costs and time.

While not an exhaustive list of terminology, understanding these basic concepts is crucial for leveraging the potential to optimize operational efficiency, reduce costs, and provide exceptional service to carriers.

Practical Uses to Streamline Business Operations

It is important to understand that AI & ML are not a cure all for what ails a business. However, given the right application of these tools, freight brokers and 3PLs alike will see an improvement in their operational efficiency and very likely be able to increase their volume more cost-effectively.

Following are a few ways that organizations can apply AI and ML applications and as a result see efficiency gains in their business.

Route Optimization and Real-time Tracking

AI algorithms can optimize delivery routes based on factors like traffic, weather, and vehicle capacity. Additionally, using these technologies allows for the real-time tracking of systems which can improve communication with customers and a better overall experience.

Automating the Cash Conversion Cycle

At the heart of every 3PL and freight broker is the cash conversion cycle, also known as the order-to-cash cycle. For many, this process is still a mix of one-part manual intervention and two-parts disparate technology, which makes for a very inefficient process.

AI and ML can play a significant role in automating this process, including auditing and invoicing. This not only enables organizations to recoup valuable time for personnel; it also is more accurate and, in most instances, will reduce the error rate to nearly zero percent.

Data-Driven Decision Making

3PLs and freight brokers are no strangers to using historical data to make future decisions. Often times that data that is being used can be 30-days old and limit the ability for an organization to make the right decision which can lead to an inefficient operation.

With the proper use of AI and ML, organizations have access to real-time data that enables them to make more accurate decisions and can also support organizational agility which is a competitive advantage.

Continuous Learning

One of the biggest advantages that 3PLs and brokers will find with ML technology is the ability to continuously learn and adjust. This means that as they ingest more data, they continually adapt and become more precise with the outputs and the information it produces. This allows companies to continually refine their processes, be nimbler, and scale all without having to add staff, which puts a squeeze on cash flow.

Increased Efficiency Close-Up

Veritas Logistics is a growing freight broker based in Cincinnati, OH. Like most other organizations of their size, they were continually looking for ways to scale their business efficiently and cost effectively.

As the Veritas business began to grow, leadership spent approximately six – eight hours each day in an effort to keep up with their freight audit and invoicing and taking time away from other strategic areas of the business.

Veritas chose to implement Navix to improve their efficiency, maximize their cash conversion process, and scale the business without adding overhead costs.

If you are interested in learning how AI and ML can make a difference in your company and how Navix can help you improve your operational efficiency, [contact us here](#).

In just a few short months, the Veritas leadership team experienced the impact that AI and ML can have on the business including:

Efficiency gains: The Veritas leadership team was able to improve their efficiency by 52% and now has the time to focus on scaling the business.

Doing less with more: Since implementing Navix, Veritas has been able to increase their volume by 400% without adding resources to keep up with the invoicing process.

Improved Time to Cash: Veritas has seen a 20% drop in their 30+ days past due accounts receivable and are experiencing improvement to their cash flow.

About Navix

Navix is the first solution that uses AI and machine learning to automate every step of the cash conversion cycle. By doing so, Navix helps our clients improve cash flow, virtually eliminate invoicing errors, lower their DSO, improve customer & carriers' satisfaction and increase profitability. To learn more, visit us at navix.io

